

FIG. 1

FIG. 2

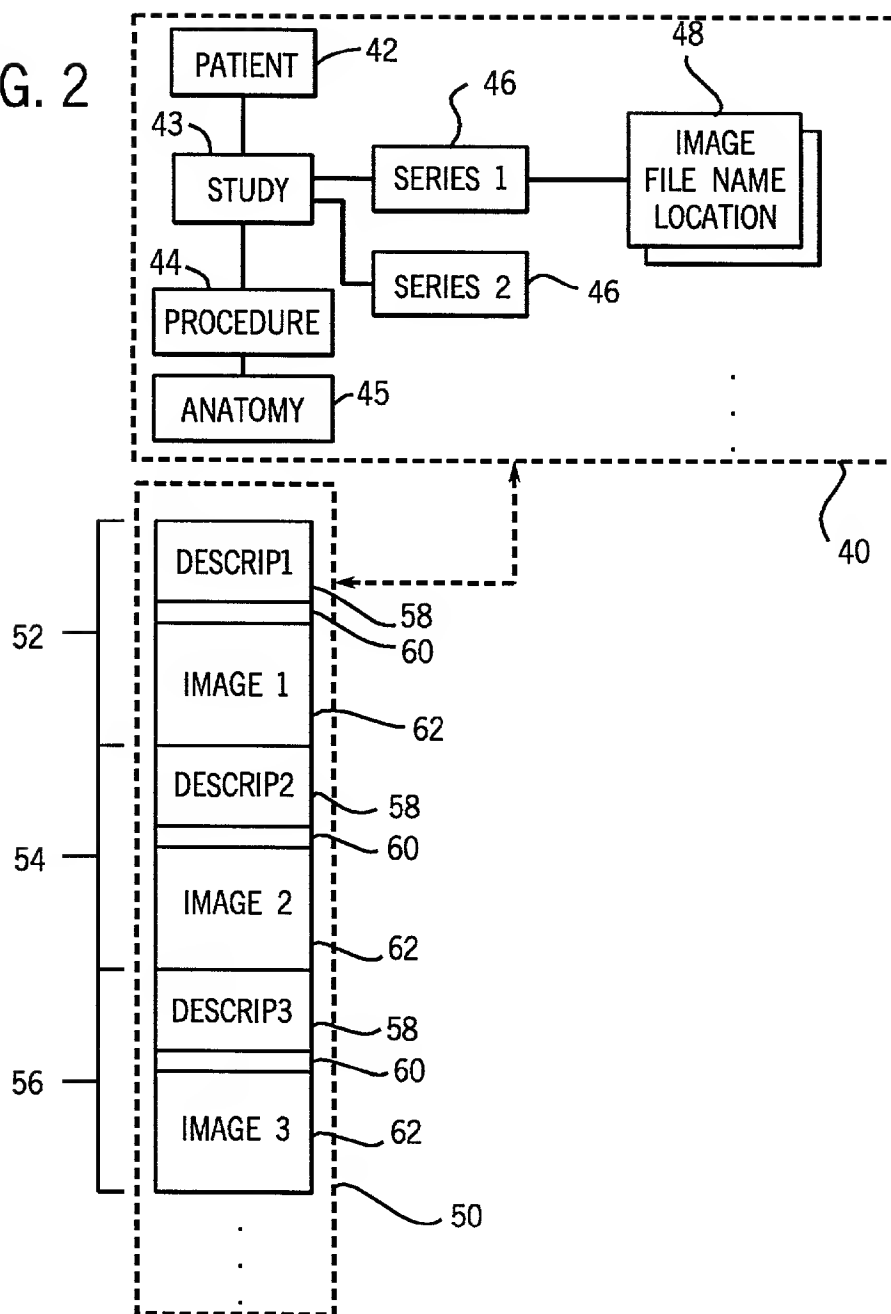
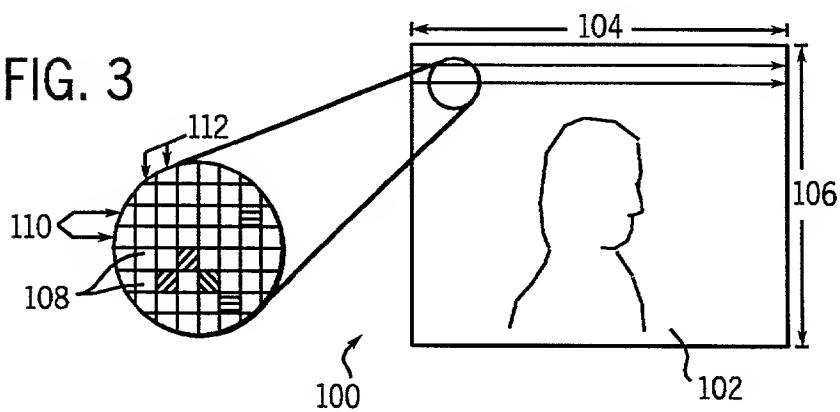
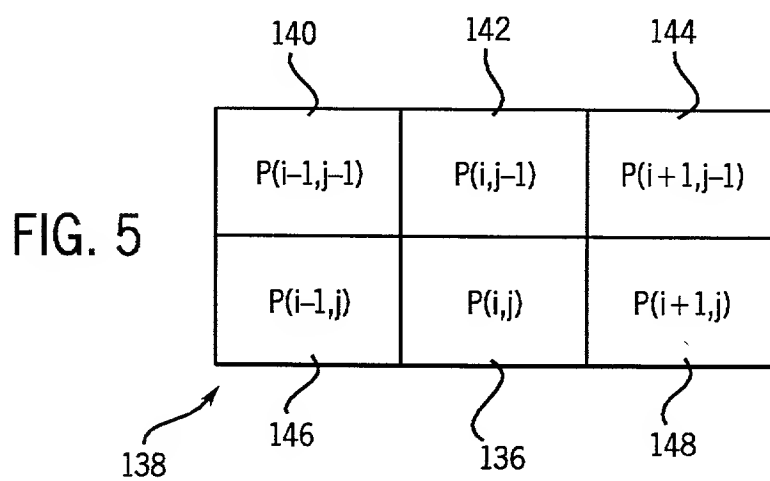
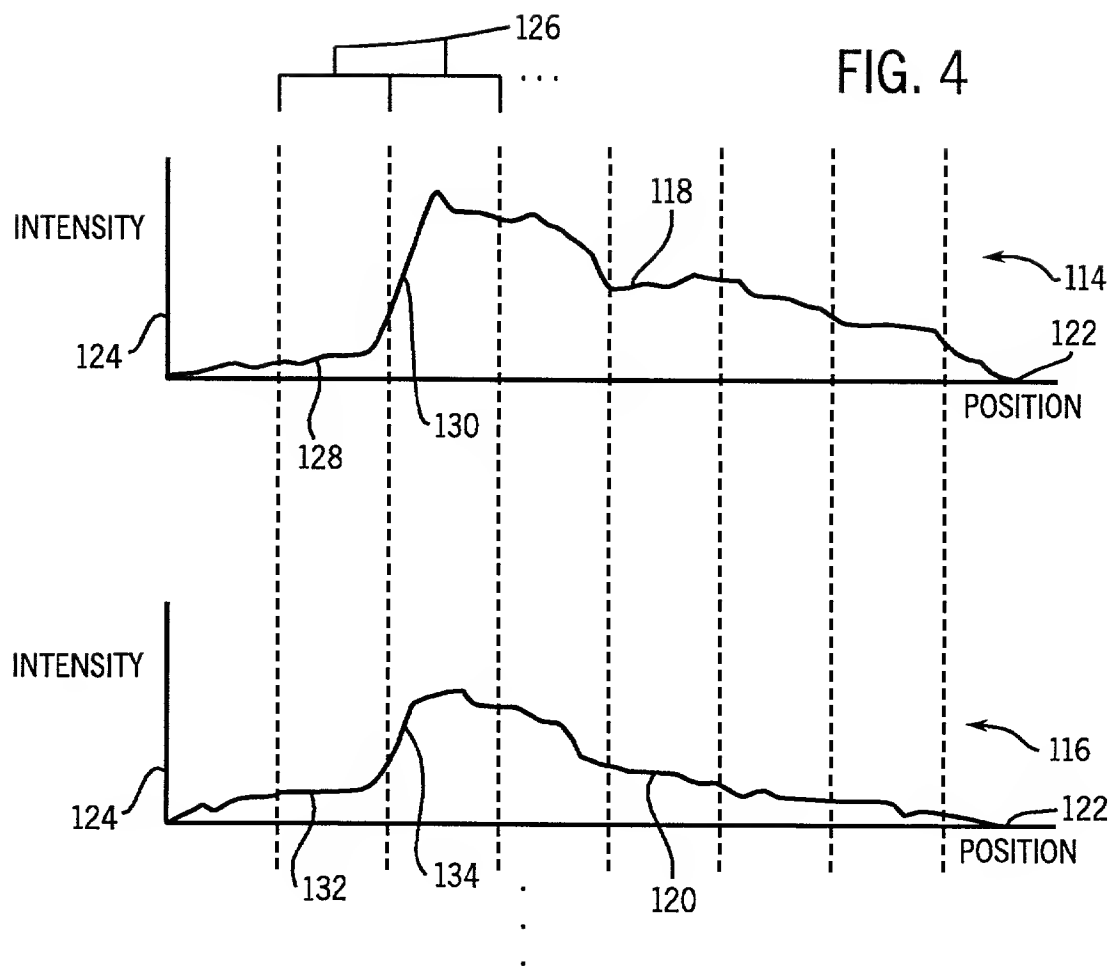


FIG. 3





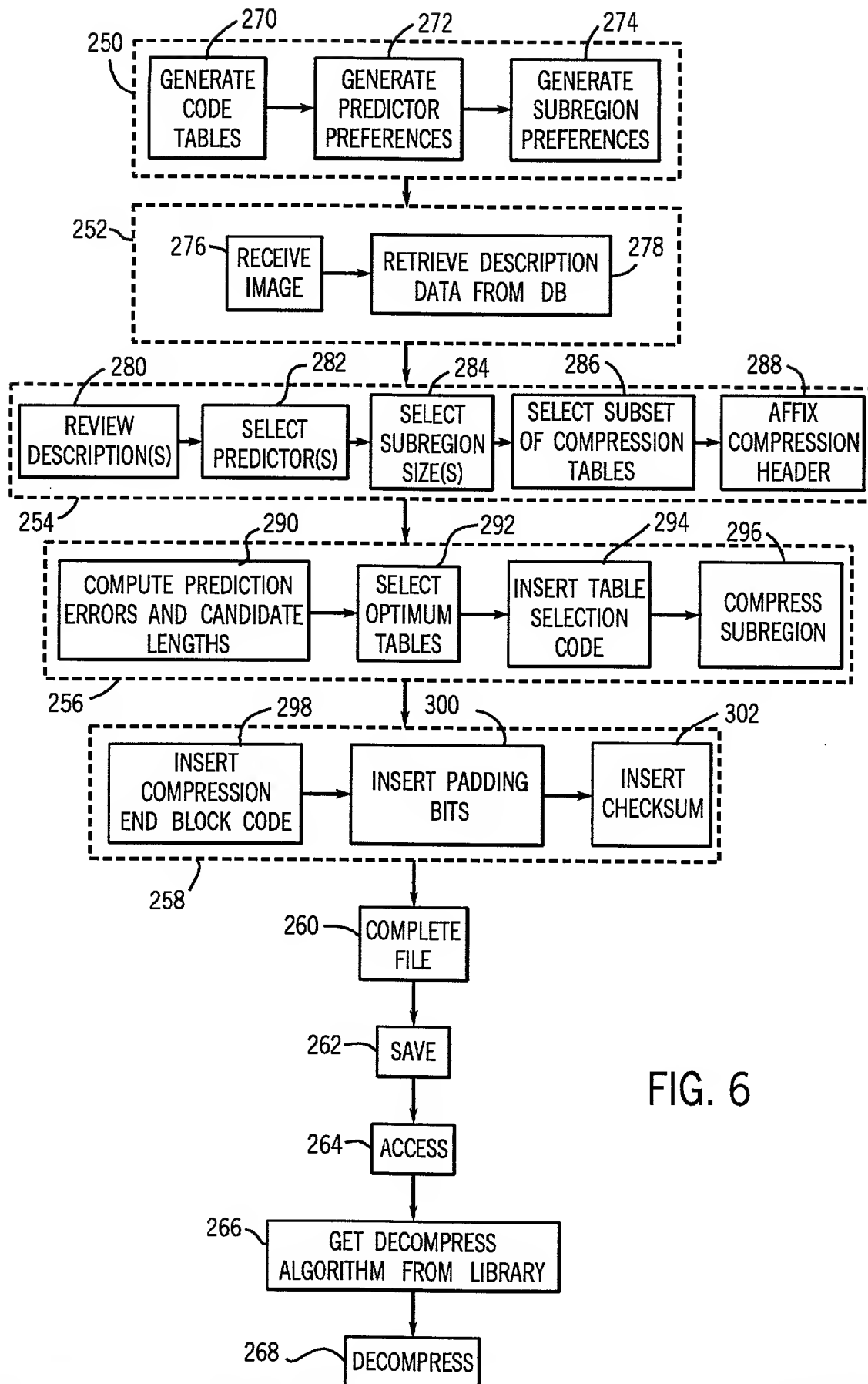


FIG. 6

16 - BIT LOSSLESS ENCODING
SCHEME 0 - MAX RATIO = 16:1

FIG. 7

HUFFMAN CODE PREFIX	CODE EXTENSION	DIFFERENCE d	CODE LENGTH	ENCODED RANGE WIDTH
0		0	1	0
100		+1	3	+1
101		-1	3	
1100	X	+2 TO +3	5	+2
1101	X	-2 TO -3	5	
11100	XX	+4 TO +7	7	+4
11101	XX	-4 TO -7	7	
111100	XXX	+8 TO +15	9	+8
111101	XXX	-8 TO -15	9	
1111100	XXXX	+16 TO +31	11	+16
1111101	XXXX	-16 TO -31	11	
11111100	XXXXX	+32 TO +63	13	+32
11111101	XXXXX	-32 TO -61	13	
111111100	XXXXXX	+64 TO +127	15	+64
111111101	XXXXXX	-64 TO -127	15	
1111111100	XXXXXXX	+128 TO +255	17	+128
1111111101	XXXXXXX	-128 TO -255	17	
11111111100	XXXXXXXX	+256 TO +511	19	+256
11111111101	XXXXXXXX	-256 TO -511	19	
11111111110 <16 BITS)		ACTUAL VALUE	27	
11111111111		END OF BLOCK	11	

180 170 182 172 174 176 178

SCHEME 1 - MAX RATIO = 5.33:1

FIG. 8

HUFFMAN CODE PREFIX	CODE EXTENSION	DIFFERENCE d	CODE LENGTH	ENCODED RANGE WIDTH
00	X	0 TO +1	3	1
01	X	-1 TO -2	3	
100	XX	+2 TO +5	5	+4
101	XX	-3 TO -6	5	
1100	XXX	+6 TO +13	7	+8
1101	XXX	-7 TO -14	7	
11100	XXXX	+14 TO +29	9	+16
11101	XXXX	-15 TO -30	9	
111100	XXXXX	+30 TO +61	11	+32
111101	XXXXX	-31 TO -62	11	
1111100	XXXXXX	+62 TO +125	13	+64
1111101	XXXXXX	-63 TO -126	13	
11111100	XXXXXXX	+126 TO +253	15	+128
11111101	XXXXXXX	-127 TO -254	15	
111111100	XXXXXXX	+254 TO +509	17	+256
111111101	XXXXXXX	-255 TO -510	17	
1111111100	XXXXXXXX	+510 TO +1021	19	+512
1111111101	XXXXXXXX	-511 TO -1022	19	
1111111110 <16 BITS)		ACTUAL VALUE	26	
11111111111		END OF BLOCK	10	

184

SCHEME 2 - MAX RATIO = 4:1

FIG. 9

HUFFMAN CODE PREFIX	CODE EXTENSION	DIFFERENCE d	CODE LENGTH	ENCODED RANGE WIDTH
00	XX	0 TO +3	4	3 ← 186
01	XX	-1 TO -4	4	
100	XXX	+4 TO +11	6	+8
101	XXX	-5 TO -12	6	
1100	XXXX	+12 TO +27	8	+16
1101	XXXX	-13 TO -28	8	
11100	XXXXX	+28 TO +59	10	+32
11101	XXXXX	-29 TO -60	10	
111100	XXXXXX	+60 TO +123	12	+64
111101	XXXXXX	-61 TO -124	12	
1111100	XXXXXXX	+124 TO +251	14	+128
1111101	XXXXXXX	-125 TO -252	14	
11111100	XXXXXXXX	+252 TO +507	16	+256
11111101	XXXXXXXX	-253 TO -508	16	
111111100	XXXXXXXXX	+508 TO +1019	18	+512
111111101	XXXXXXXXX	-509 TO -1020	18	
111111110 <16 BITS)		ACTUAL VALUE	25	
111111111		END OF BLOCK	9	

FIG. 10

SCHEME 3 - MAX RATIO = 3.2:1

HUFFMAN CODE PREFIX	CODE EXTENSION	DIFFERENCE d	CODE LENGTH	ENCODED RANGE WIDTH
00	XXX	0 TO +7	5	7 ← 188
01	XXX	-1 TO -8	5	
100	XXXX	+8 TO +23	7	+16
101	XXXX	-9 TO -24	7	
1100	XXXXX	+24 TO +55	9	+32
1101	XXXXX	-25 TO -56	9	
11100	XXXXXX	+56 TO +119	11	+64
11101	XXXXXX	-57 TO -120	11	
111100	XXXXXXX	+120 TO +247	13	+128
111101	XXXXXXX	-121 TO -248	13	
1111100	XXXXXXXX	+248 TO +503	15	+256
1111101	XXXXXXXX	-249 TO -504	15	
11111100	XXXXXXXXX	+504 TO +1015	17	+512
11111101	XXXXXXXXX	-505 TO -1016	17	
111111110 <16 BITS)		ACTUAL VALUE	24	
111111111		END OF BLOCK	8	

FIG. 11

SCHEME 4 - MAX RATIO = 2.67:1

HUFFMAN CODE PREFIX	CODE EXTENSION	DIFFERENCE d	CODE LENGTH	ENCODED RANGE WIDTH
00	XXXX	0 TO +15	6	15
01	XXXX	-1 TO -16	6	
100	XXXXX	+16 TO +47	8	+32
101	XXXXX	-17 TO -48	8	
1100	XXXXXX	+48 TO +111	10	+64
1101	XXXXXX	-49 TO -112	10	
11100	XXXXXXX	+112 TO +239	12	+128
11101	XXXXXXX	-113 TO -240	12	
111100	XXXXXXXX	+240 TO +495	14	+256
111101	XXXXXXXX	-241 TO -496	14	
1111100	XXXXXXXXX	+496 TO +1007	16	+512
1111101	XXXXXXXXX	-497 TO -1008	16	
1111110 <16 BITS)		ACTUAL VALUE	23	
1111111		END OF BLOCK	7	

FIG. 12

SCHEME 5 - MAX RATIO = 2.29:1

HUFFMAN CODE PREFIX	CODE EXTENSION	DIFFERENCE d	CODE LENGTH	ENCODED RANGE WIDTH
00	XXXXX	0 TO +31	7	31
01	XXXXX	-1 TO -32	7	
100	XXXXXX	+32 TO +95	9	+64
101	XXXXXX	-33 TO -96	9	
1100	XXXXXXX	+96 TO +223	11	+128
1101	XXXXXXX	-97 TO -224	11	
11100	XXXXXXX	+224 TO +479	13	+256
11101	XXXXXXX	-225 TO -480	13	
111100	XXXXXXX	+480 TO +991	15	+512
111101	XXXXXXX	-481 TO -992	15	
111110 <16 BITS)		ACTUAL VALUE	22	
111111		END OF BLOCK	6	

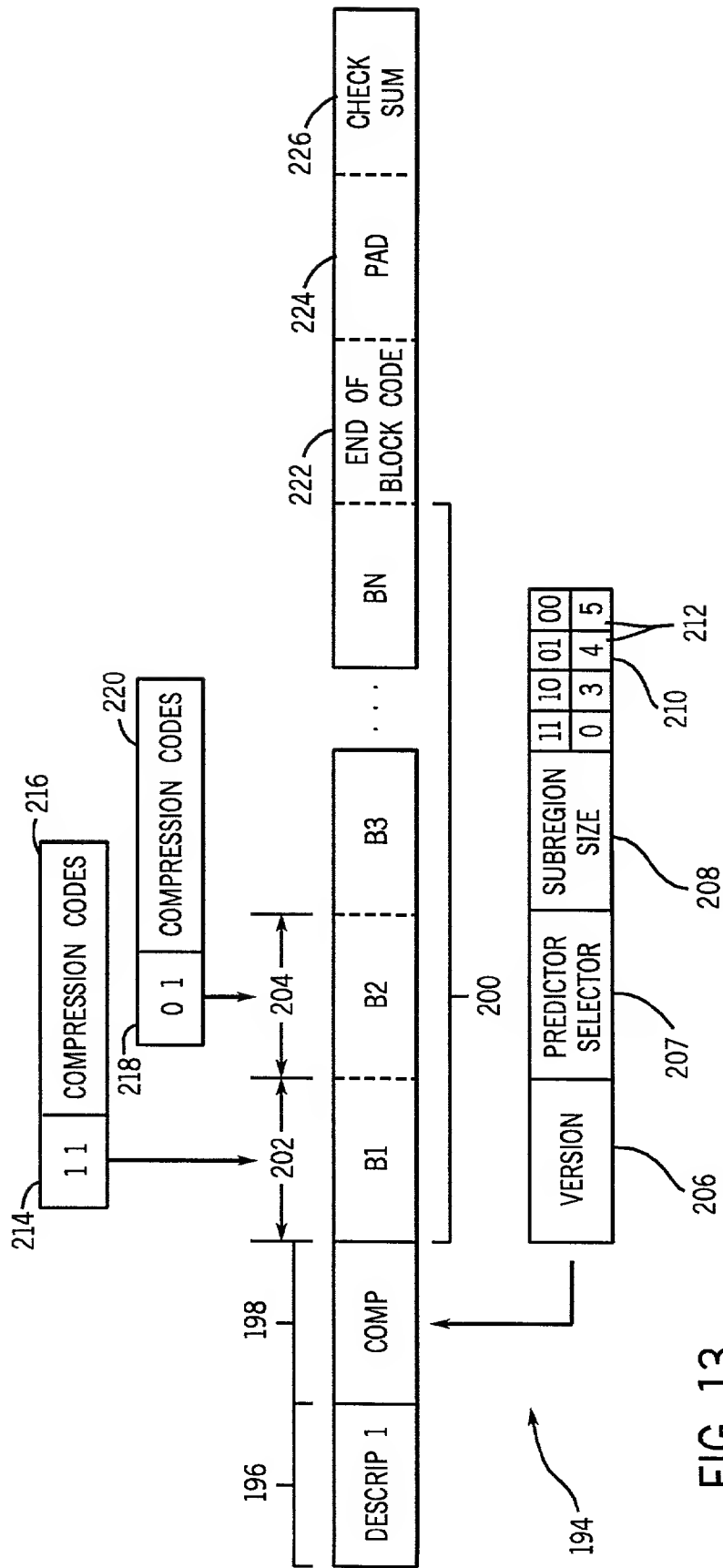


FIG. 13

FIG. 14

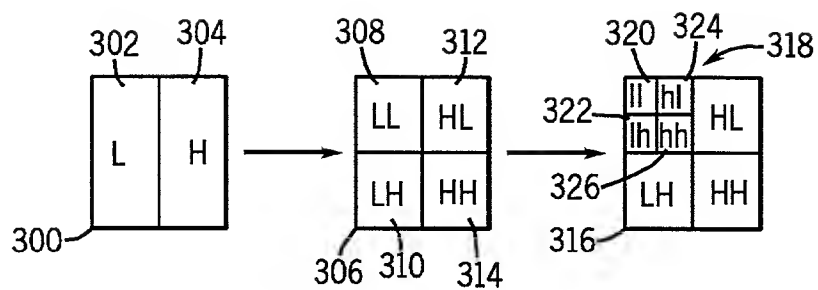
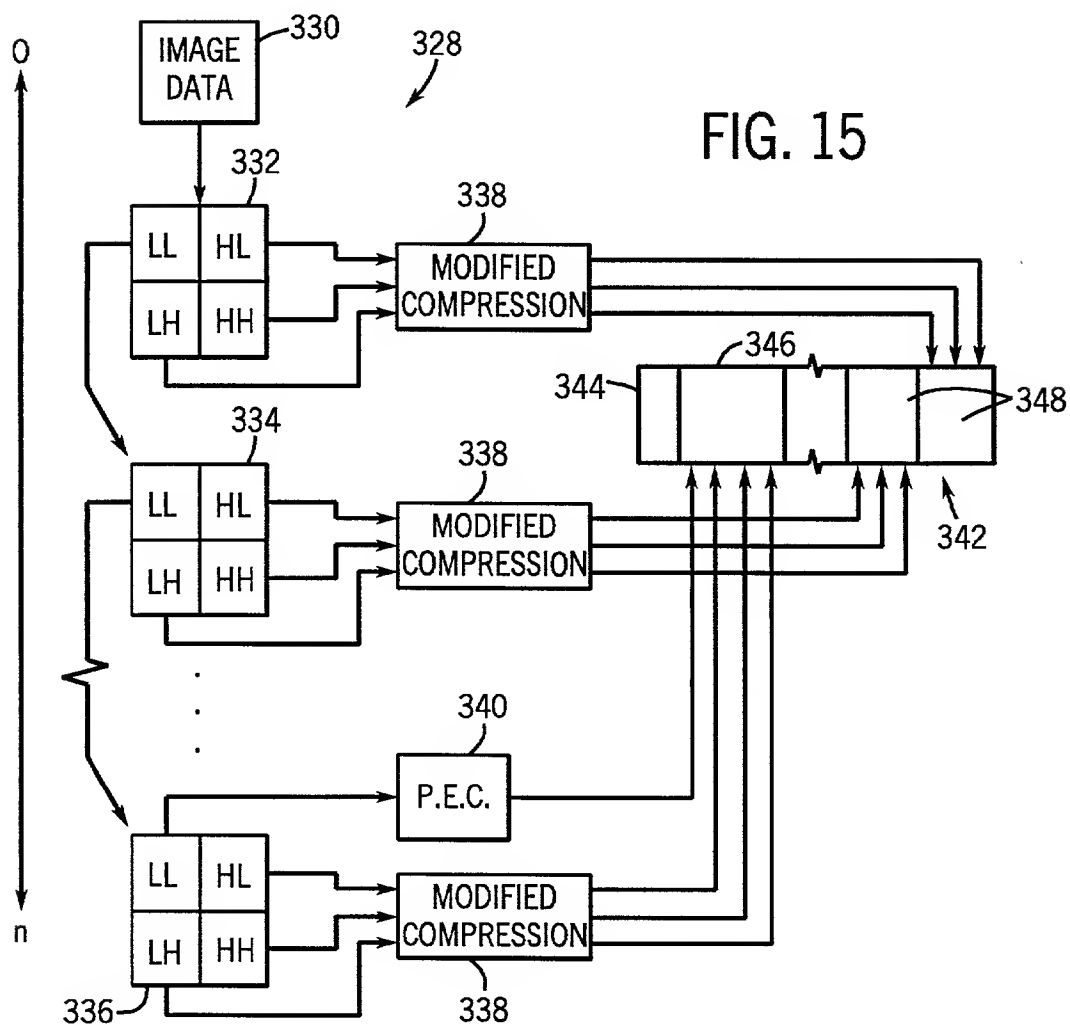


FIG. 15



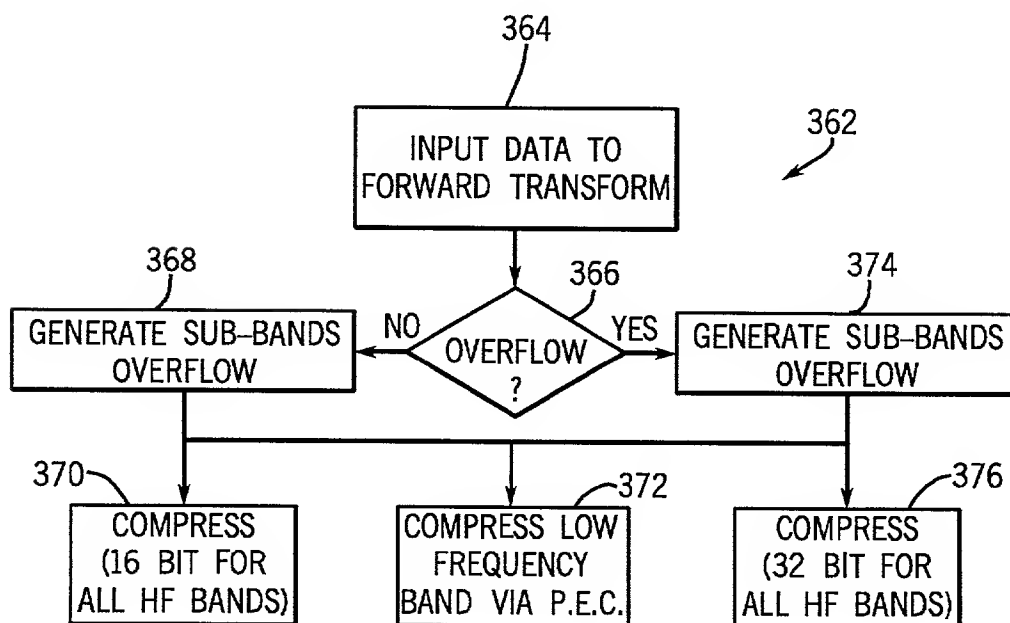
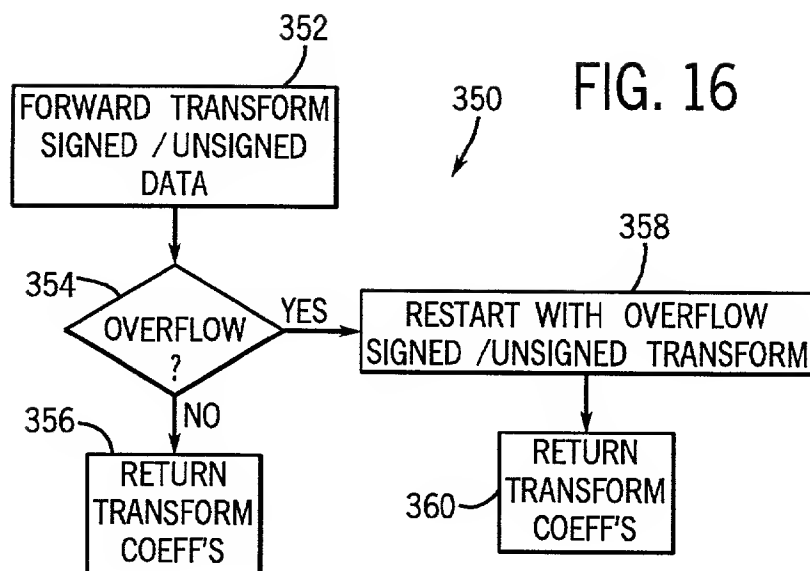


FIG. 17

FIG. 18

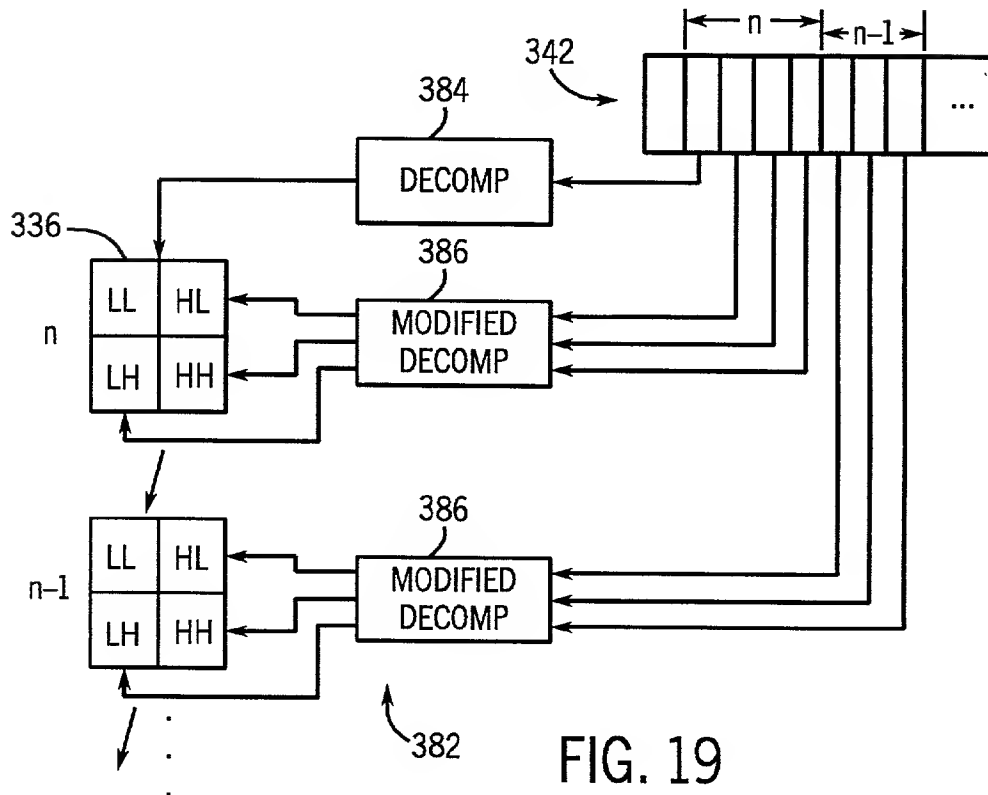
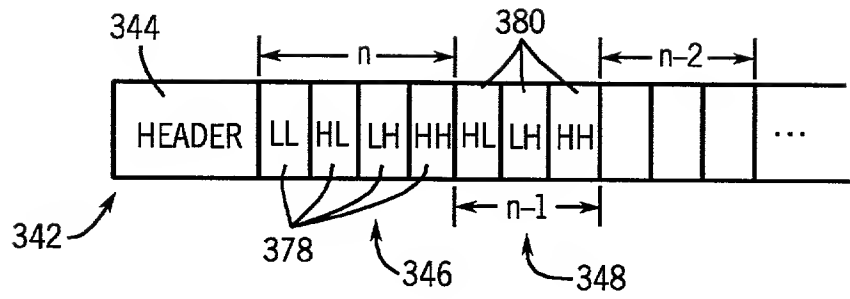
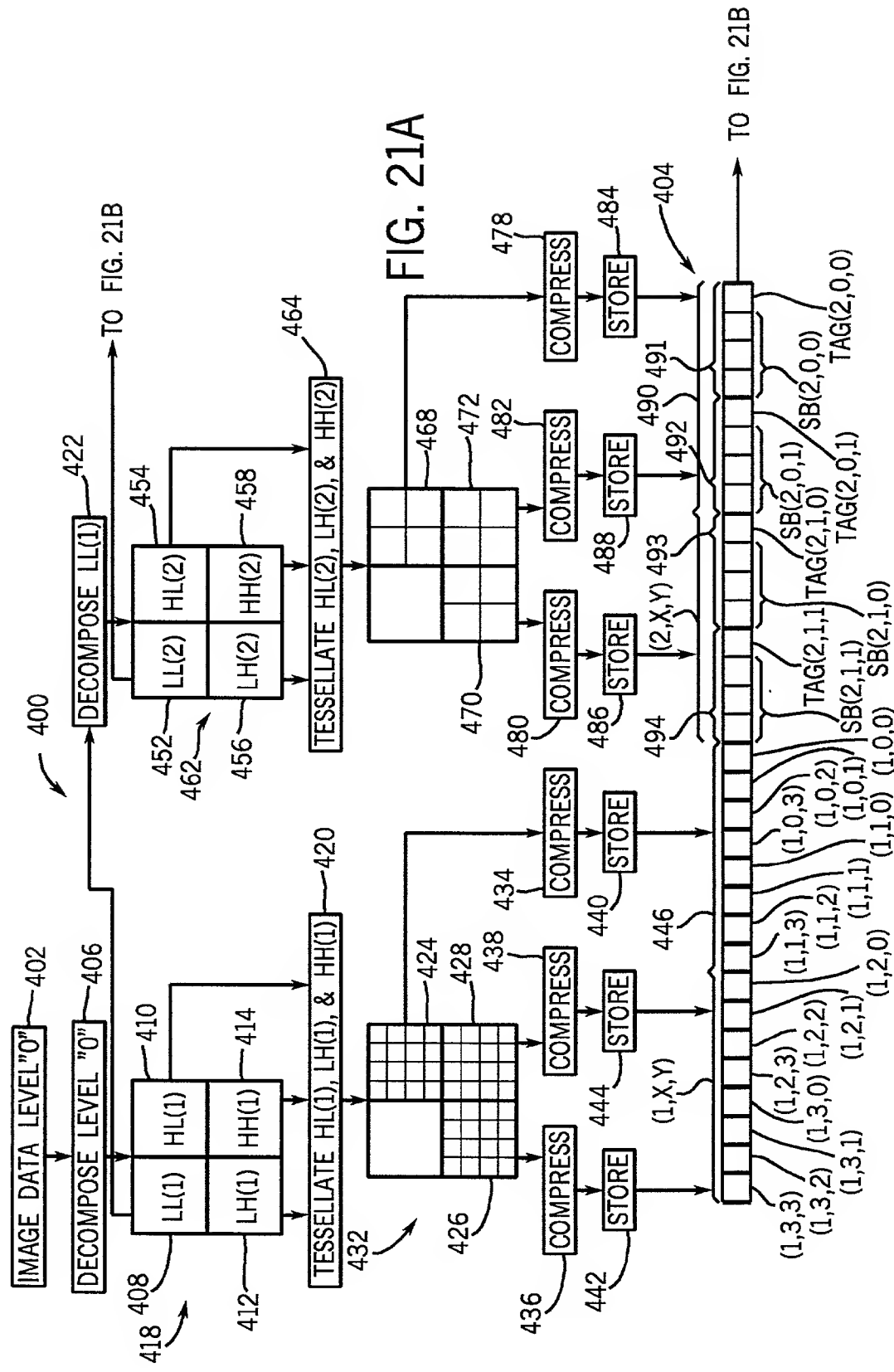
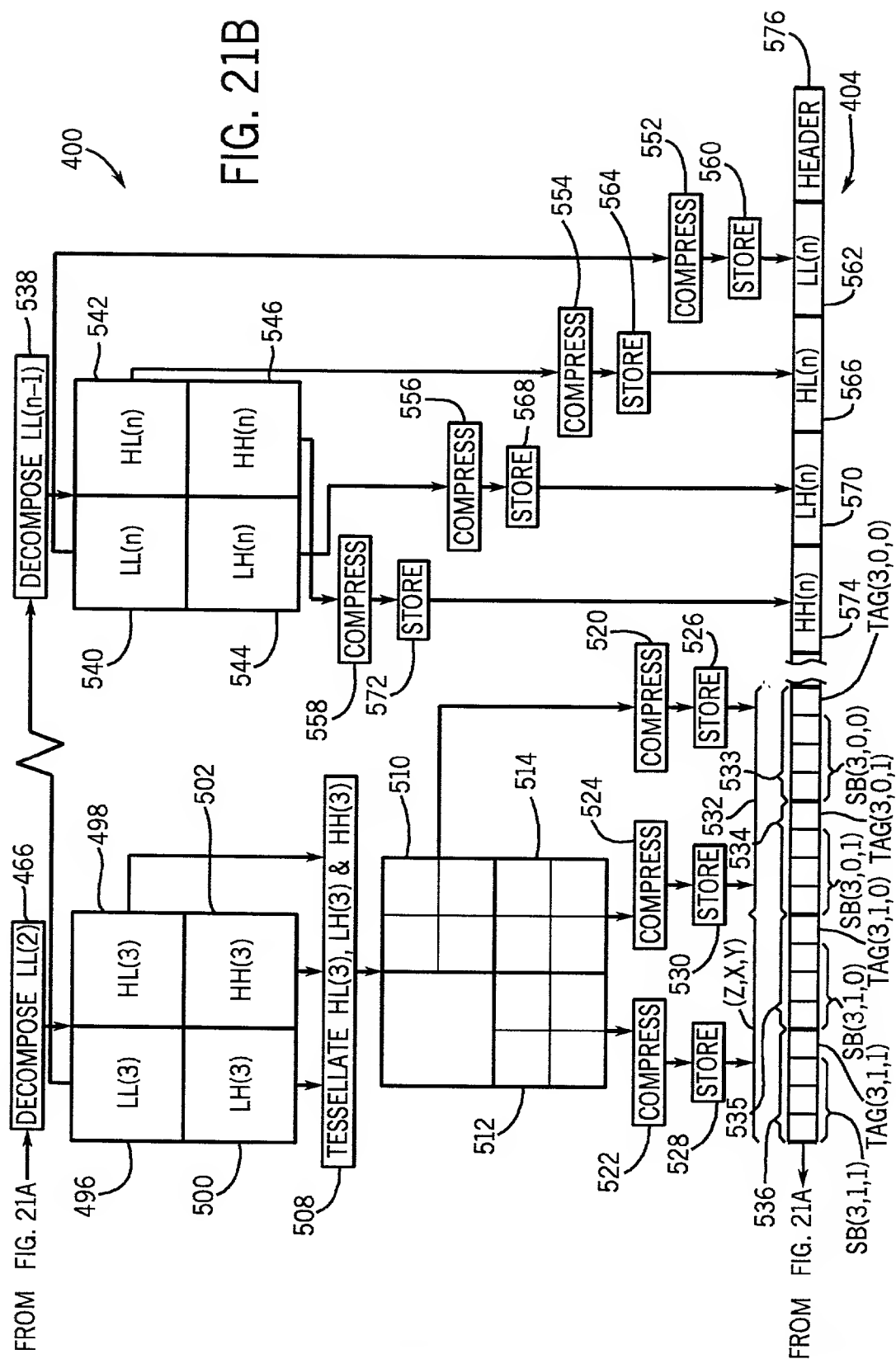


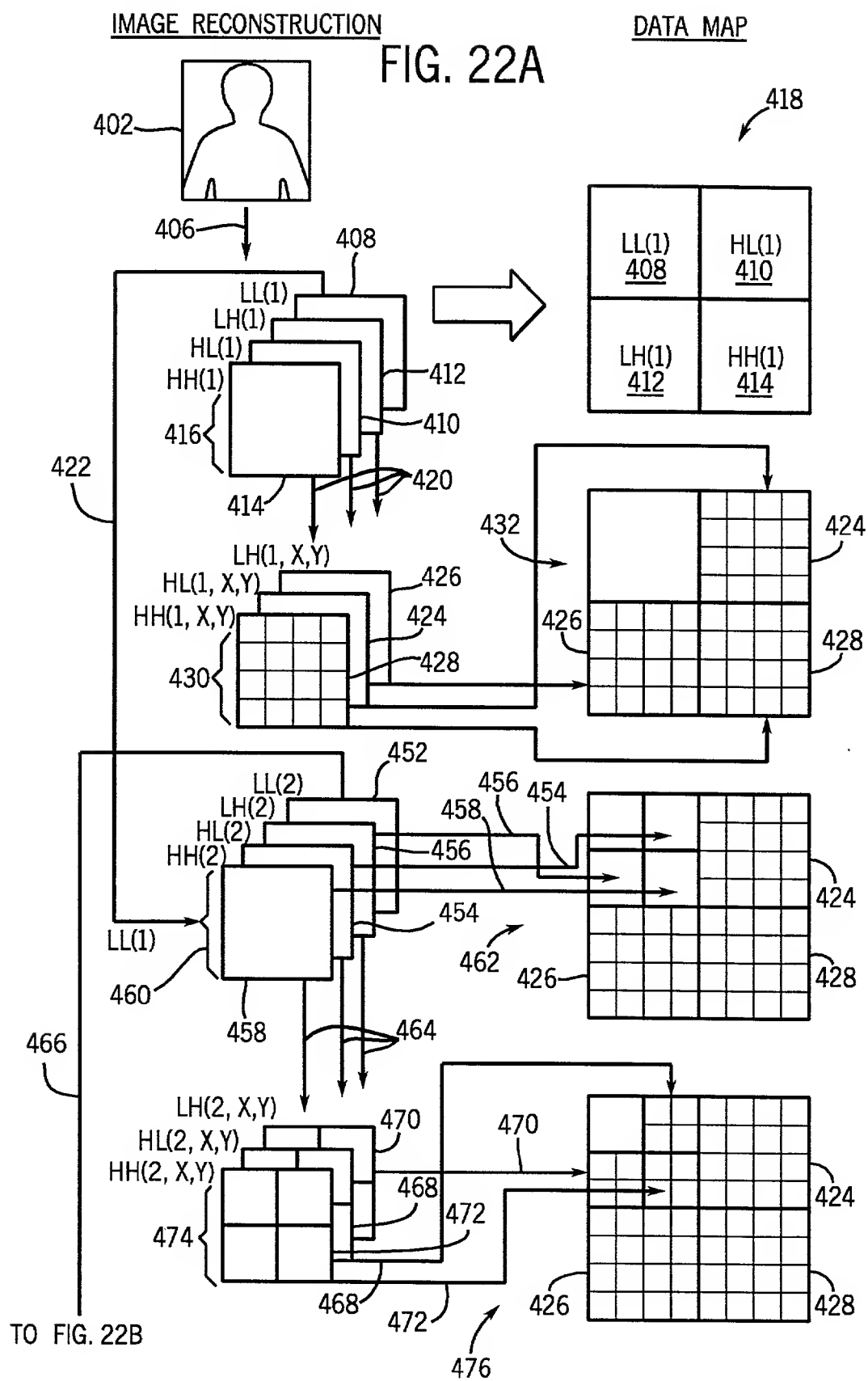
FIG. 19

LEVEL	ROWS	COLS	COMPRESSED BYTES	EFF COMP RATIO
5	64	79	5652	1811:1
4	128	157	13780	526:1
3	256	313	49868	147:1
2	512	625	186128	40:1
1	1024	1250	724560	10:1
0	2048	2500	2929860	2.6:1

FIG. 20







FROM FIG. 22A

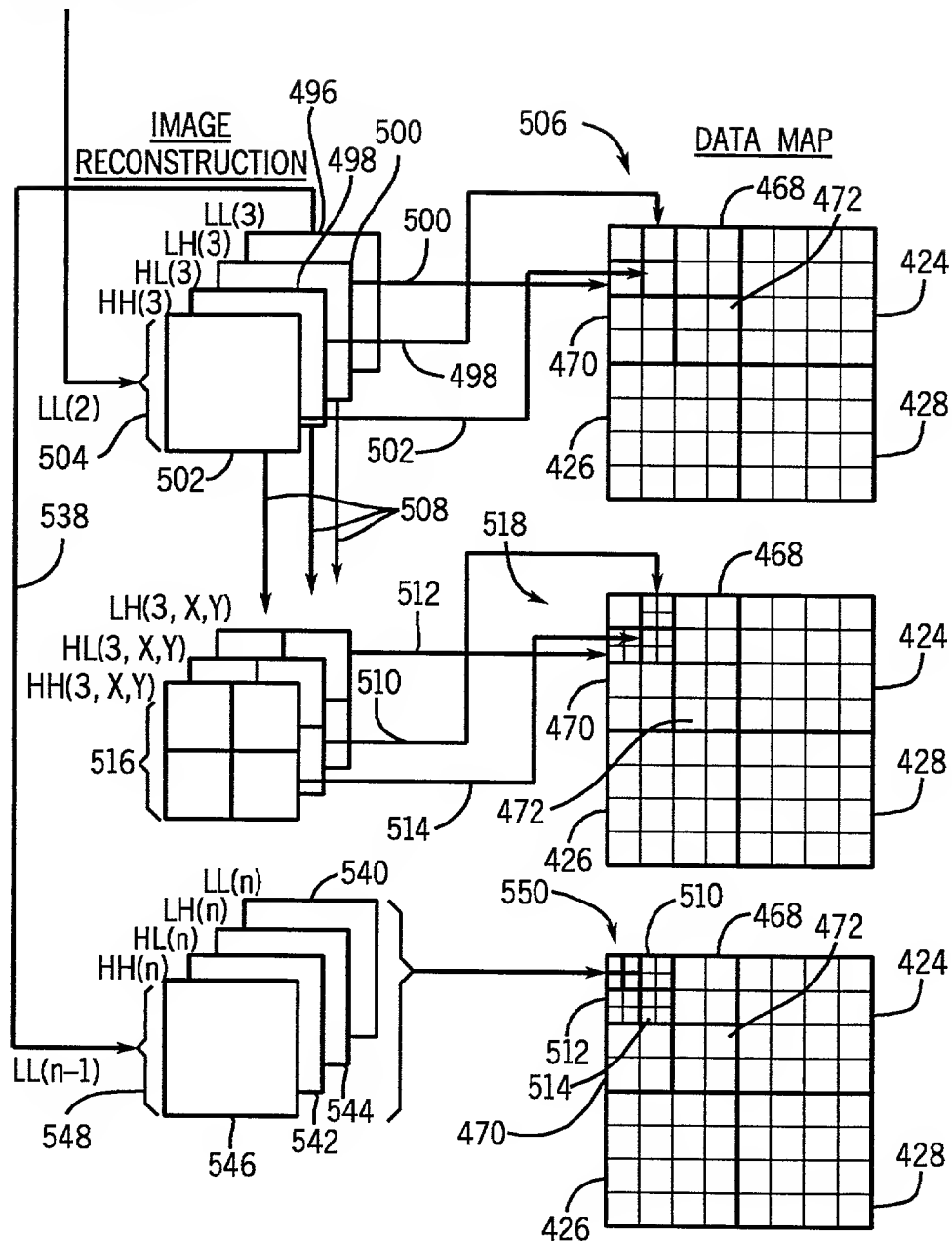


FIG. 22B

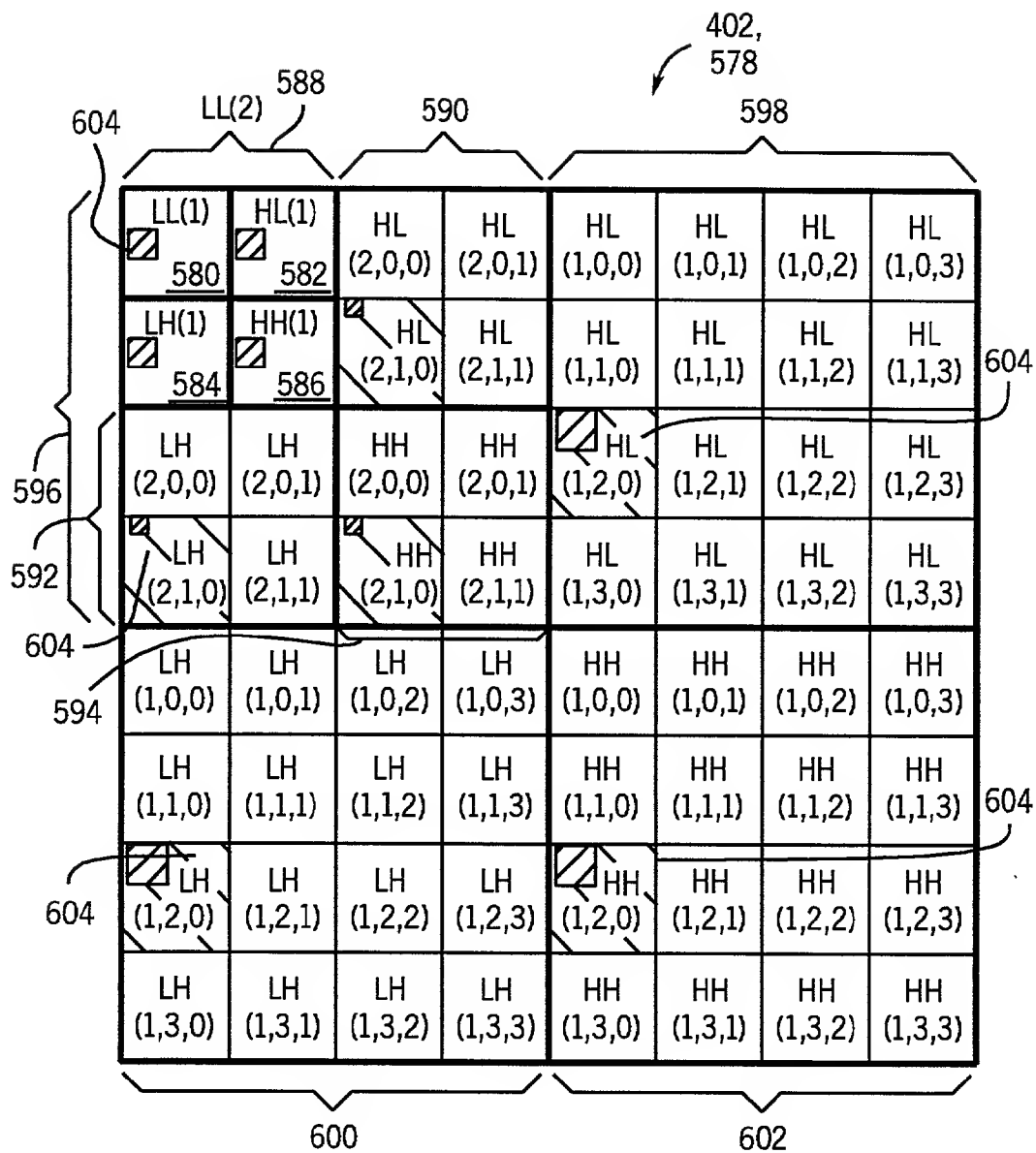


FIG. 23

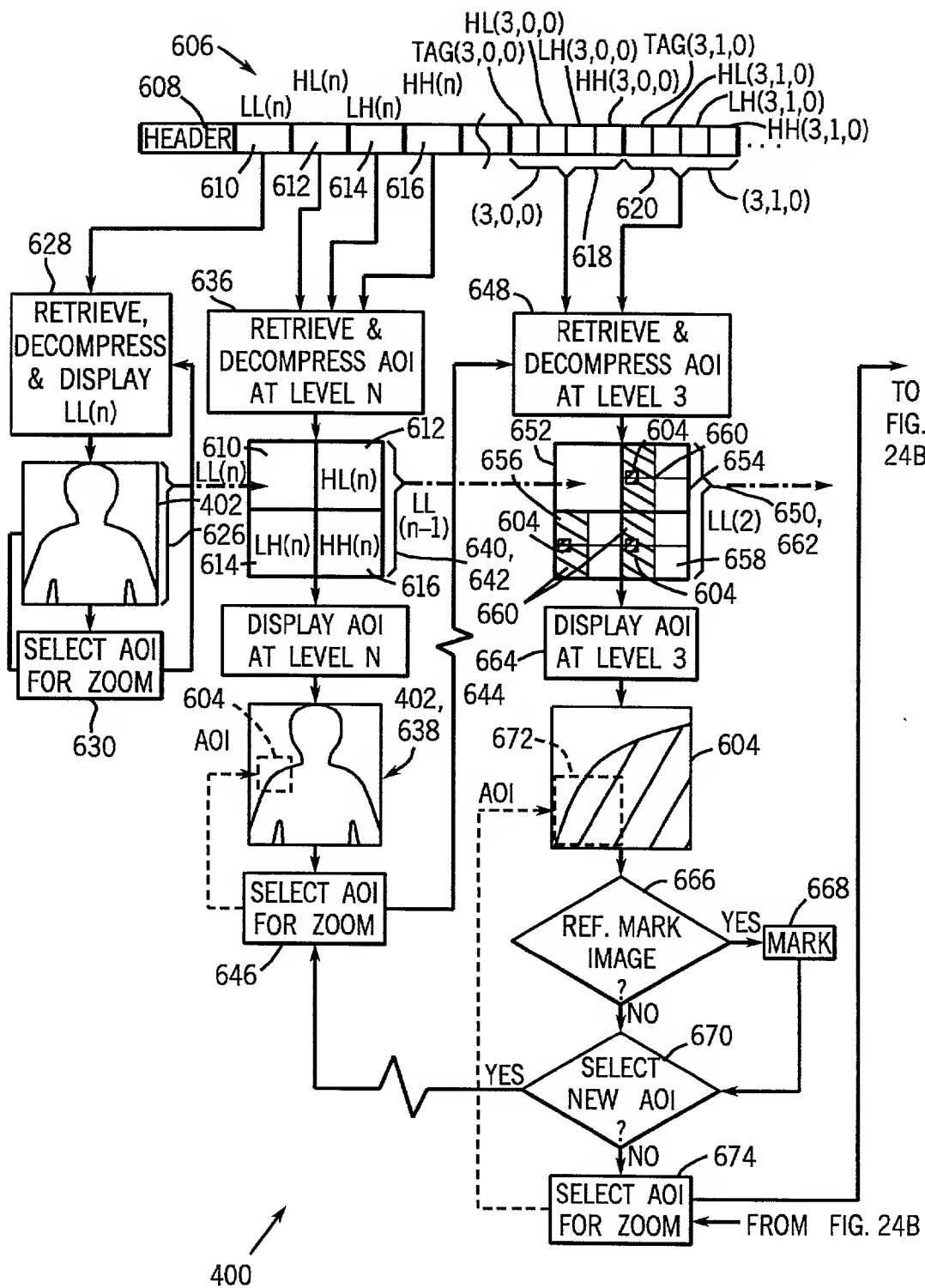


FIG. 24A

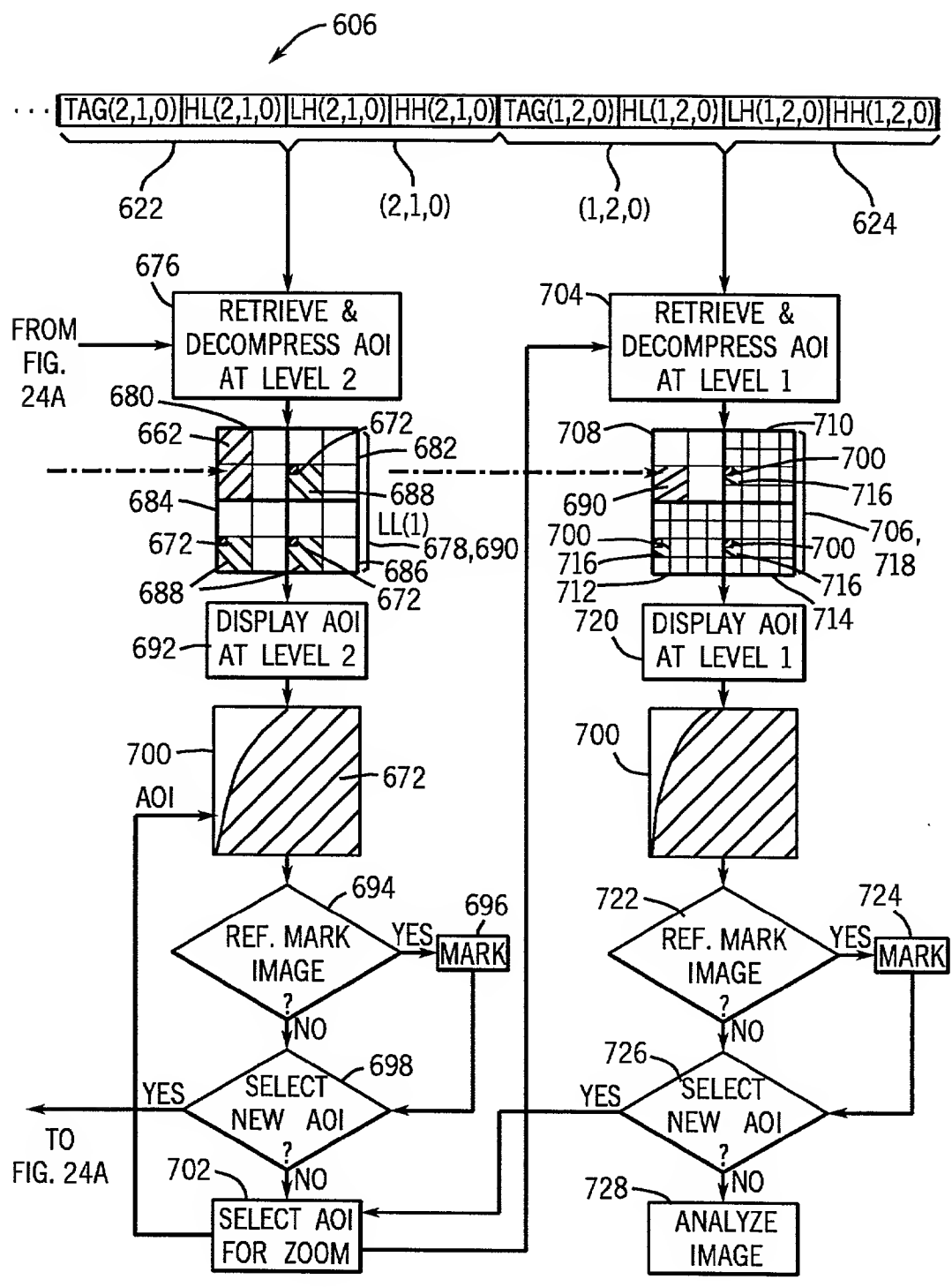


FIG. 24B

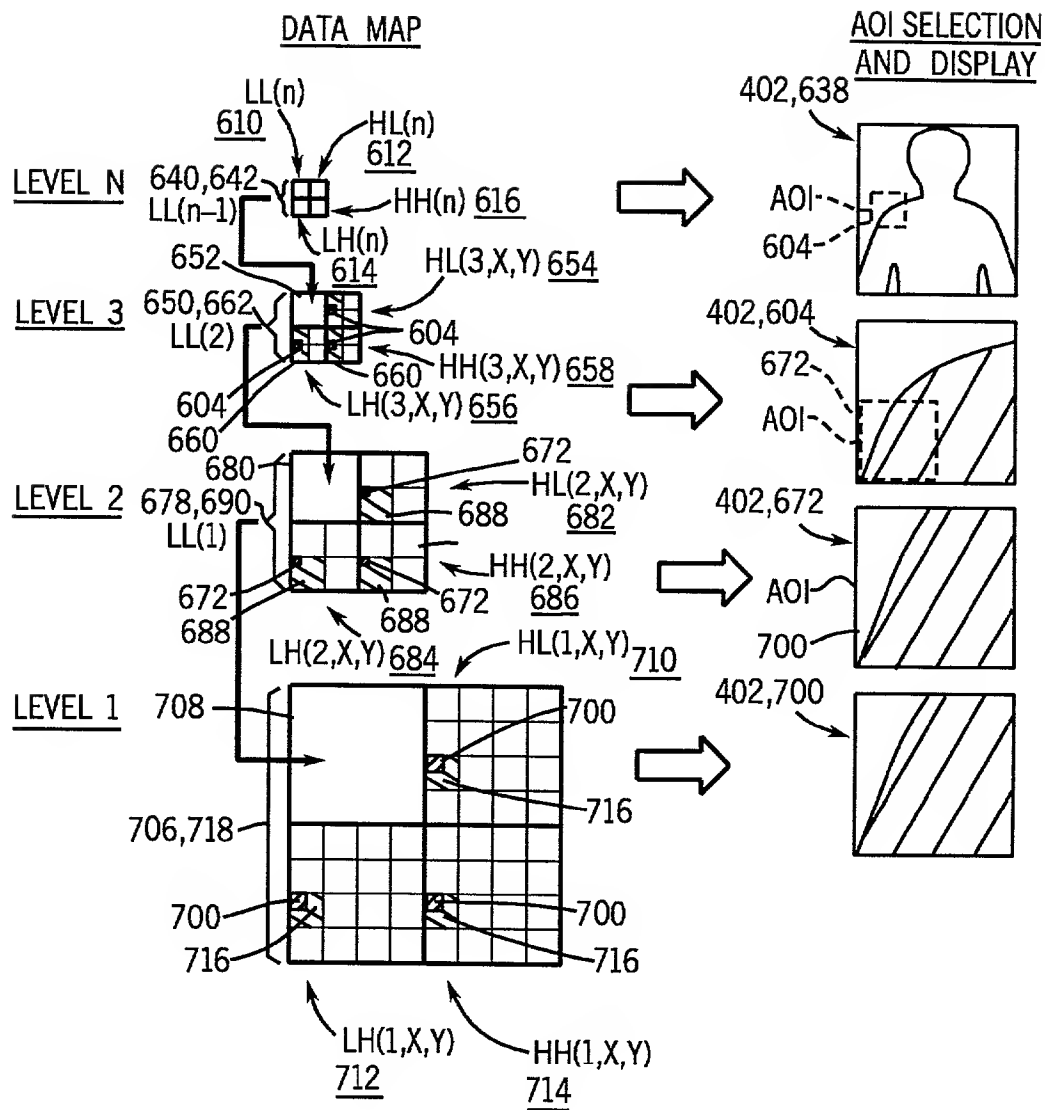
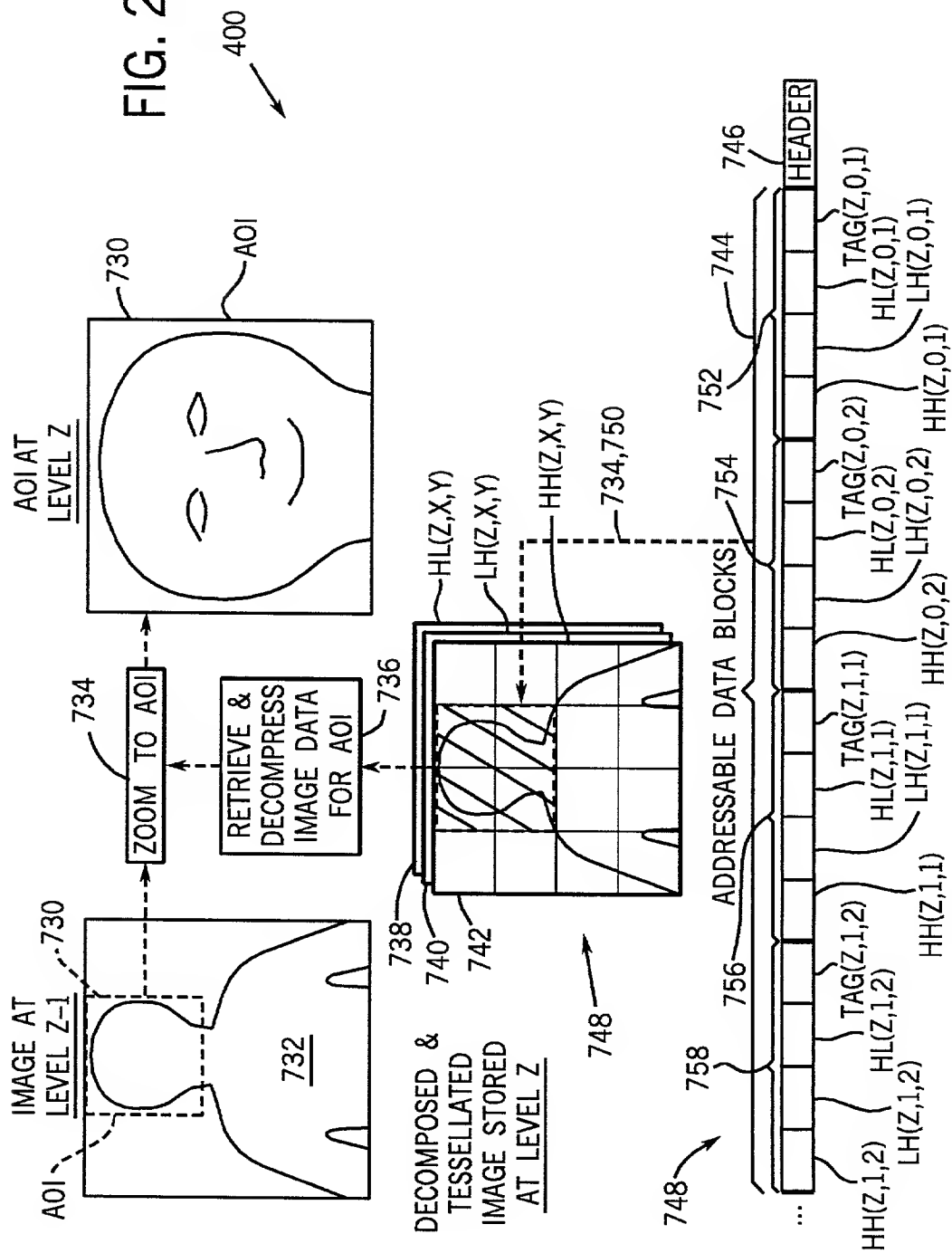


FIG. 25

FIG. 26



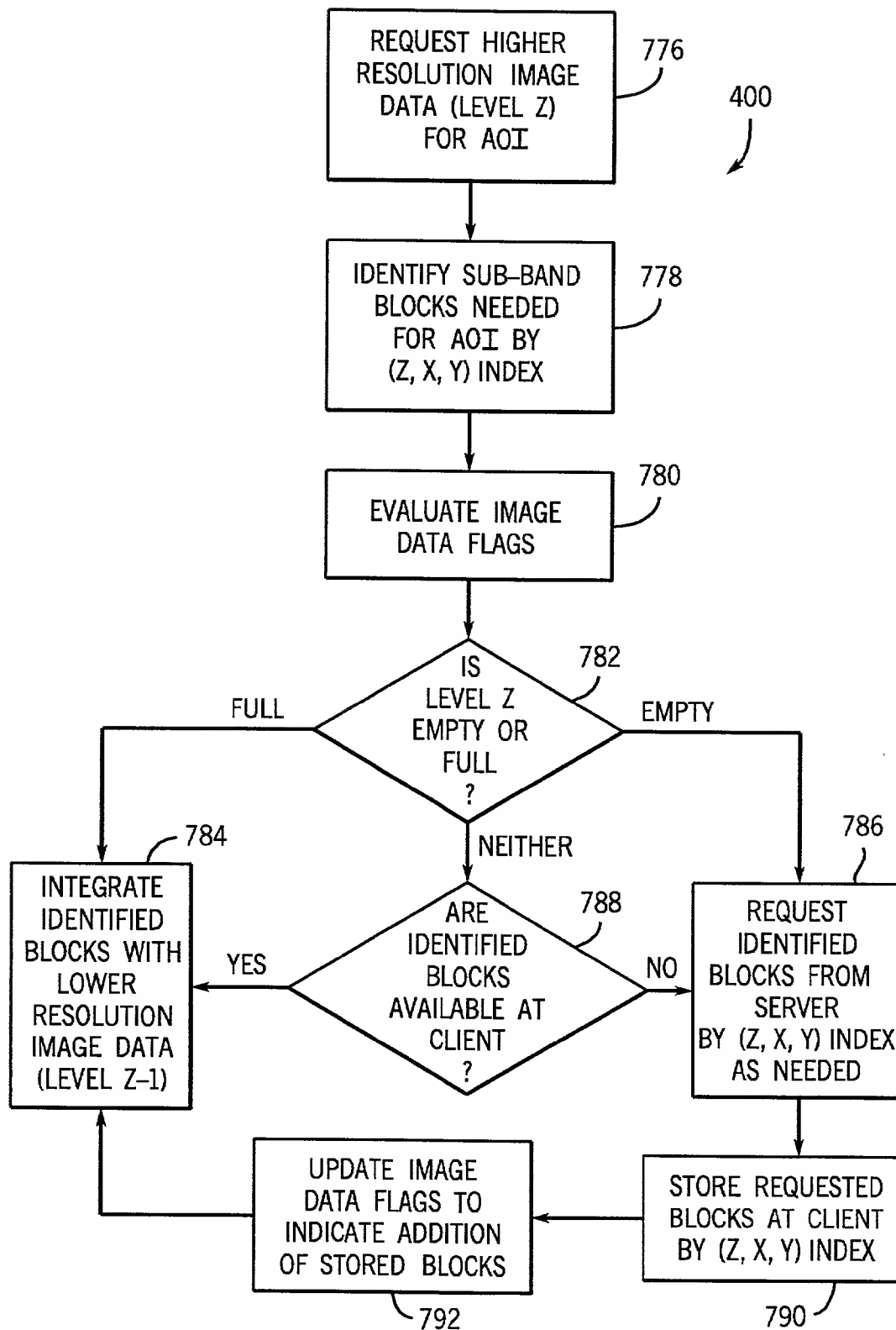


FIG. 27